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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,437	02/14/2002	Scott Tucker	032674-142	8727

7590

06/27/2003

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EXAMINER

DEB, ANJAN K

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 06/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,437

Applicant(s)

TUCKER, SCOTT

Examiner

Anjan K Deb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-7, 12-22 is/are allowed.
- 6) ☒ Claim(s) 8-11 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-11, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brambilla (US 5,623,254 A).

Re claims 8, 23 Brambilla discloses drive circuit (Fig. 2) fault detection circuit comprising first current mirror 28 for detecting an open circuit fault condition in a load 5 connected to drive circuit 1, and an open circuit detection device (circuit) 12 (column 3 line 67, column 4 lines 1-18) when output voltage exceeds a threshold (logic level F1, F2).

Brambilla did not expressly disclose passing current in inductive head assembly.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Brambilla by adding an inductive head assembly for a load.

Re claim 9, Brambilla discloses resistor 32 connected to current mirror 28 and open circuit detection circuit 12 (Fig. 2).

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Re claim 10, Brambilla discloses combination of two AND circuits 36,37 broadly interpreted as operating as comparator (Fig. 2).

Re claim 11, Brambilla discloses reference voltage at node 40 is proportional to load current since the current I is mirrored in branch circuit (30,32) (column 4 lines 1-11) (Fig. 2).

Allowable Subject Matter

3. Claims 1-7, 12-22 are allowed.

Reasons For Allowable Subject Matter

Claims 1-7, 22 are allowed because the prior does not teach or fairly suggest an arrangement and method for detecting a short circuit condition in a pair of write head terminals of a write driver comprising generating a second current that is proportional to write current flowing in an opposite direction to a first write current and detecting a short circuit condition when an average value of first current is different from second write current in combination with remaining claims limitations.

Claims 12-21 are allowed because the prior does not teach or fairly suggest an arrangement for detecting an open-circuit and short circuit condition in a pair of write head terminals of a write driver comprising a third current mirror for detecting an open circuit in combination with remaining claims limitations.

Pertinent Art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rathke et al. (US 5,304,935) discloses microprocessor controlled apparatus for detecting an open circuit (LOAD OPEN) and short circuit (LOAD SHORTED HIGH)(LOAD SHORTED LOW) fault condition in an inductive load (14) using current mirror (Fig. 5) for sensing load current (Fig. 2).

Pascucci et al. (US 5,276,644) discloses a current sensing circuit for determining the status of a device (memory cell) comprising a comparator SA for comparing outputs from first and second current mirror (Cm1, CM2) (Fig. 2).

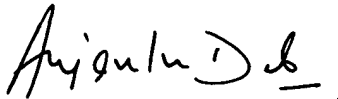
Nakamura (US 5,712,739) discloses Magnetic disk drive system comprising an inductive head and MR head (101,102), first current mirror circuit (317,318) and a second current mirror circuit (505,506) connected to the input terminals IN1, IN2 of differential amplifier (307) for sensing head current.

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Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is (703) 308-2941. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le, can be reached at (703)-308-0750.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone numbers are (703)-308-0956 and (703)-305-4900.



Anjan K. Deb

Patent Examiner

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6/25/03

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